

The dark side of global sourcing: a systematic literature review and research agenda

Article (Accepted Version)

Stanczyk, Alina, Cataldo, Zelal, Blome, Constantin and Busse, Christian (2017) The dark side of global sourcing: a systematic literature review and research agenda. *International Journal of Physical Distribution and Logistics Management*, 47 (1). pp. 41-67. ISSN 0960-0035

This version is available from Sussex Research Online: <http://sro.sussex.ac.uk/id/eprint/65462/>

This document is made available in accordance with publisher policies and may differ from the published version or from the version of record. If you wish to cite this item you are advised to consult the publisher's version. Please see the URL above for details on accessing the published version.

Copyright and reuse:

Sussex Research Online is a digital repository of the research output of the University.

Copyright and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable, the material made available in SRO has been checked for eligibility before being made available.

Copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

The dark side of global sourcing: a systematic literature review and research agenda

Abstract

Purpose – This study presents a systematic review of the literature concerning the negative aspects of global sourcing (GS). It complements prior research on the positive aspects of GS, advances theoretical understanding of the phenomenon, and suggests an agenda for future research.

Design/methodology/approach – The sourcing, international business, and supply chain management literature is systematically reviewed, and the findings from 83 previous studies are investigated.

Findings – Research on the downsides of GS has intensified over the last decade, but the related knowledge has been very fragmented and often latent. This literature review extracts knowledge around 28 antecedents to GS downsides from prior research and illustrates their potential harmful effects along operational and financial performance dimensions. The findings suggest that future research should focus more on the effects of both decision-making biases and firm-internal barriers. The dynamic and hidden costs of GS should also be scrutinized in greater depth.

Originality/value – This study is the first systematic literature review of the downsides of GS. It facilitates a more balanced and nuanced appraisal of GS to facilitate better-informed GS decisions by managers. The review also offers a holistic research framework, opening avenues for much-needed research into the dark side of GS.

Keywords Global sourcing, Downsides, Barriers, Risks, Uncertainties, Costs, Decision-making bias

Paper type Literature review

Introduction

Global sourcing (GS) has received substantial scholarly attention since the 1990s, when the purchasing function gained in strategic importance (Carter and Narasimhan, 1996). Over the last 25 years, GS became a necessity, rather than a luxury, for many firms because of better accessibility to low-cost markets (Agndal, 2006; Monczka *et al.*, 2009).

Initially, GS research concentrated predominantly on the benefits associated with GS, such as cost reduction, access to worldwide technology, improvements to quality, and delivery reliability improvements (Alguire and Frear, 1994; Bozarth *et al.*, 1998; Fagan, 1991; Trent and Monczka, 1994). The processes and mechanisms that render GS as difficult or costly, however, received far less attention back then (Levy, 1995). At the turn of the millennium, scholars began to shift their focus to pursuit of efficiency (Petersen *et al.*, 2000; Zeng and Rossetti, 2003) and to organizational design issues in GS (Nassimbeni and Sartor, 2007; Trautmann *et al.*, 2009). In the last decade, more attention has been paid to the negative aspects associated with GS (Holweg *et al.*, 2011; Kinkel and Maloca, 2009; Nassimbeni, 2006, Tsai *et al.*, 2009).

The pay rates in low-cost countries have given managers expectations of significant savings, but recent research indicates that these savings do not always materialize (Mol *et al.*, 2005). GS can, in fact, increase costs because of greater geographical distance, quality problems, and increased inventory requirements (Golini and Kalchschmidt, 2011; Tse and Tan, 2012). Moreover, globalized supply chains come with an increased risk (Stratton and Warburton, 2006; Zhu, 2015). Geographical and cultural distance, together with organizational complexity, can also limit the obtainable benefits of GS (Trautmann *et al.*, 2009). Accordingly, although GS remains a high priority for many companies in industrialized countries (Horn *et al.*, 2013), its effects on performance are equivocal (Holweg *et al.*, 2011; Steinle and Schiele, 2008). Understanding the conditions under which companies experience operational and financial gains (or problems and losses) from GS is crucial. Although the myth of GS as a “purchasing panacea” or a “business recipe” has recently been dispelled (Demeter, 2014; Najafi *et al.*, 2013; Schiele *et al.*, 2011), many

companies that source a large proportion of goods from distant suppliers do not analyze the hidden dangers of this approach (Son and Orchard, 2013). Until now, knowledge about the dark side of GS has tended to be buried in the purchasing, logistics, marketing, and international business literature. This undermined transparency and hindered comprehending problems connected with sourcing globally. Given the increasing attention on this topic and the need to better understand the above-mentioned issues, a systematic review of the extant literature is needed.

Previous literature reviews of GS responded to demands for knowledge appropriate to the time of their compilation. Quintens *et al.* (2006) predominantly reported on the positives of GS, in terms of antecedents and performance consequences; they indicated only potential barriers to implementation. Pagano (2009) summarized the intra-organizational aspects of relational capabilities in GS. Hence, this research complements the valuable prior GS literature reviews.

This study not only aggregates the existing literature but also comes at a time when reshoring and backshoring are being seen as direct responses to services and manufacturing offshoring failures (Ellram *et al.*, 2013; Fratocchi *et al.*, 2014; Fratocchi *et al.*, 2015; Gray *et al.*, 2013; Kinkel, 2014). This study aims to offer better understanding of GS problems, elucidate their antecedents and consequences, and ultimately contribute to establishing a more realistic view of the phenomenon. By increasing awareness of the dark side of GS, this study should enable better-informed decision-making and prevent failures in future GS endeavors. This research contributes to conceptual insights on GS through in-depth analysis of its downsides and by means of identifying research gaps that enable further knowledge development. The aim of this work is to answer the following research questions:

- 1) What are the dark sides of global sourcing, and how do they manifest themselves?
- 2) What is the future research agenda for the dark side of global sourcing?

This investigation applies the GS conceptualization of Trent and Monczka (2003b, p. 614), who refer to GS as “proactively integrating and coordinating common items and materials, processes and design, technologies and suppliers across worldwide purchasing, engineering and

operating locations.” This study concentrates on the buying of components, semi-products, and final products (in the case of outsourced production) from *external* suppliers, while considering the full spectrum of locations (domestic, near, or far). Importantly, not all sourcing decisions have to result in cross-border purchases: the decision to purchase from a local supplier, having evaluated foreign options, is also regarded as a GS decision, consistent with the conception suggested by Quintens *et al.* (2006).

After presenting the methodology and results, this paper assesses the empirical and conceptual territory of the field to identify valuable avenues for future research, indicating the implications for managers. A brief conclusion summarizes the contributions and acknowledges the study’s limitations.

Methodology

This paper uses the systematic literature review approach established by Denyer and Tranfield (2009). Systematic reviews provide high-quality evidence by adopting a replicable, rigorous, and transparent process for synthesizing scientific knowledge (Tranfield *et al.*, 2003). Thus, they represent the ideal method for answering this study’s research questions. To reduce research bias, the study involves multiple researchers from different countries, investigates three databases, and avoids limiting itself to any timeframe, specific journals, or publishing outlets (Tranfield *et al.*, 2003). Following Denyer and Tranfield (2009), in addition to the systematic literature reviews by Durach *et al.* (2015) and Hohenstein *et al.* (2015), a five-step procedure of content analysis is followed: 1) question formulation, 2) locating studies, 3) study selection and evaluation, 4) analysis and synthesis, and 5) reporting and using the results.

Question formulation

Systematic literature reviews represent the “comprehensive accumulation, transparent analysis and reflective interpretation of all empirical studies pertinent to a specific question” (Rousseau *et al.*, 2008, p. 9). Accordingly, two explicit research questions were formulated, as stated in the

introduction.

Locating studies

The goal of the systematic review is to locate, select, and evaluate the maximum possible number of articles relevant to the research question (Denyer and Tranfield, 2009). To reduce bias, three databases were used: Business Source Complete, Science Direct, and Emerald. These databases were selected as they are large repositories of business research, providing a wide range of publishing outlets of highest impact for the research community (Sandberg and Aarikka-Stenroos, 2014). Following Denyer and Tranfield (2003), a team of three senior researchers and two research assistants – from different countries and specializing in the fields of supply chain management, operations and logistics, and global sourcing – validated the initial search terms. In two brainstorming sessions, the team critiqued and developed additional keywords and extended a search string by indicating all known synonyms for “global sourcing”. The set of keywords constituted a search string in that all synonyms for “sourcing” were combined with all the cognates for “global” as presented in Table I.

----- Insert Table I here -----

For each database, the search string first had to be adjusted according to the specific search guidelines, and was then applied in the search field offering the most relevant results. In total, 3,885 articles were identified: 1,171 articles from Business Source Complete (abstracts search), 350 from Science Direct (expert search field), and 2,364 from Emerald (advanced full text search). The searches generated a large number of duplicate articles. The differences in the number of articles found is attributable to the scope of each respective repository.

Study selection and evaluation

Following the rigorous methodology recommended for a systematic literature review (Pawson, 2006; Tranfield *et al.*, 2003), no timeframe restrictions were applied. However, to ensure that only high-quality manuscripts were considered, the investigation was limited to peer-reviewed journals

(Denyer and Tranfield, 2009). Next, the inclusion/exclusions criteria list was developed and agreed on by all the authors and is shown in Table II.

----- Insert Table II here -----

Two authors then eliminated duplicate articles and analyzed the abstracts according to the predefined inclusion and exclusion criteria. All the abstracts were read independently in a blind procedure by the two authors to enhance validity. The inclusion/exclusion decisions were based solely on analysis of the abstracts, without any additional information and with the tendency to be inclusive rather than exclusive. To ensure inter-coder reliability between the two authors, after reviewing the first 50 abstracts, a check for inclusion consistency was made. In case of doubt, a further researcher moderated the decision. This was necessary for four percent of the abstracts. The calculated Cohen's Kappa was 0.91 (Cohen, 1960) for the sample of 50 abstracts. This rate indicates high reliability of the process of inclusion and exclusion of the articles (Landis and Koch, 1977).

After this procedure, the sample comprised 287 articles discussing GS. The two authors shared the articles between them and read them independently. Eleven additional articles were identified through cross-referencing. The sample was further refined by excluding all articles that did not discuss the downsides of GS. Where there was doubt, the article was read by both researchers. This led to a final sample of 83 articles. The article selection process is shown in Figure 1.

----- Insert Figure 1 here -----

Analysis and synthesis

The final sample was analyzed and synthesized with the aim of answering the research questions. In this literature review, a combined bottom-up and top-down approach was used. A conceptual framework of antecedents and consequences applied previously to the study of GS (Quintens *et al.*, 2006; Mol *et al.*, 2005) was used with the aim of subsequently assigning the results of inductive coding to these categories.

As recommended by Rousseau *et al.* (2008) when synthesizing studies of a heterogeneous nature and where a large part of the sample comprises qualitative studies, an interpretative synthesis approach was taken. This involved flexible and open coding schemes developed by the authors. First, the two researchers read and independently coded 15 articles each in an Excel file. Any features that could be understood as a downside of GS, or directly linked topics, were coded into one of the predefined categories. The two authors compared the themes and patterns that emerged across the articles, after completing the coding of the 15 articles.

Upon discussion of the first coding results, they agreed that, aside from the two basic broad categories (“antecedents” and “performance effects”), an additional category of “long-term consequences” could be observed. The remaining 68 articles were coded in this manner using these broad categories. After completing the coding procedure, the synthesis process involved interpreting research to build higher-order concepts (Rousseau *et al.*, 2008). The two authors presented all of the coded antecedents to the rest of the research team, who then allocated the codes to the higher-order antecedent categories. The same process was then conducted for effects and long-term consequences. Long-term consequences were finally included into the effects category. When no further synthesis was possible, the conclusions were consolidated and discussed: 28 antecedents and twelve effects were developed. Subsequently, a comprehensive model comprising all the developed elements was created.

Review results

The publication years of the sample journal articles range from 1984 to 2016. A slight increase of research interest in the downsides of GS appeared in the early 2000s, followed by a more significant increase in subsequent years. In fact, 77 percent of the final sample papers (64 of 83) were published from 2006 to 2016 inclusive. The authors observed that research attention on the dark side of GS was triggered by disruptions such as Hurricane Katrina, the Fukushima catastrophe, terrorism, the global economic crisis of 2008, and increasing costs in developing countries, all of which influenced the global business economy (Blackhurst *et al.*, 2005;

Christopher *et al.*, 2011; Hohenstein *et al.*, 2015; Schoenherr *et al.*, 2008; Wagner and Bode, 2006); another trigger was recent critical views of GS operations and their questionable success (Horn *et al.*, 2013; Platts and Song, 2010, Schiele *et al.*, 2011). These developments indicate the increased importance of the topic for companies' prosperity, in addition to the need to critically assess this rapidly growing body of knowledge.

Regarding the methodologies used in the reviewed studies, drawing on Calantone and Vickery (2009) and Seuring and Müller (2008), the authors of this paper used the following classification: large scale (using primary or secondary data, including archival data); small scale (case studies, including grounded theory); mixed methods (comprising both survey and case study); conceptual; modelling; and experimental design. Figure 2 presents the use of the different research methods in the sample.

----- Insert Figure 2 here -----

Small-scale research has been the preferred method for exploring the negative side of GS over the last 32 years. This method was used in 44 percent of the papers (37 of 83). The second most commonly used methodology was large-scale research, with 27 articles, representing 32 percent of the publications. While the initial period (1984–1994) could mostly be characterized by the dominant use of large-scale research, the middle period (1995–2005) was marked by an increased use of small-scale research, which continued to grow strongly in importance in the last period (2006–2016), as the number of small-scale research publications rose from five to 32. The increased popularity of other methodologies to generate knowledge about GS, such as conceptual and modelling, was also noted during the last period. Significantly less interest was dedicated to mixed methods and experimental design, representing four and two publications respectively, throughout the whole studied period. Although research into GS downsides has been increasing in recent years, the topic still remains under-researched and more theory development and theory testing is needed. This is consistent with the call for new theory building raised previously by Contractor *et al.* (2010) and Kinkel (2014).

This study developed a research framework that captures the antecedents of GS downsides and their effects in the context of GS processes. The research framework is shown in overview in Figure 3 and is discussed in detail throughout this section.

----- Insert Figure 3 here -----

Antecedents

Antecedents are the preceding factors of GS processes and are responsible for causing operational and financial performance effects. A distinction is made between internal and external factors (see Figure 3).

External factors

External factors comprise barriers, risks, and uncertainties. A barrier is a “contextual factor that obstructs the translation of efforts into outcomes” (Busse *et al.*, 2016c, p. 445). As such, GS barriers render sourcing particularly difficult and negatively impact GS efforts (Quintens *et al.*, 2006). Uncertainties are contextual factors that are difficult or even impossible to anticipate, whereas risks are expected external factors associated with potential losses (Sydow and Frenkel, 2013). For the sake of parsimony, risks and uncertainties are discussed together.

External barriers. GS processes can be hindered by three types of barriers: location-specific barriers, institutional barriers, and supply base issues. External barriers are featured in 50 percent (42 of 83) of the analyzed studies. Each of these is explained briefly here and in more detail in the literature indicated (see Table III).

----- Insert Table III here -----

Location-specific barriers have already been well covered in a number of empirical GS studies. Geographical distance between buyers and suppliers is the most significantly analyzed barrier in international business (e.g., Busse *et al.*, 2016c; Levy, 1995). Similarly, language distance, cultural distance, and business practice differences are barriers to establishing and conducting international purchasing operations (Monczka and Giunipero, 1984; Quintens *et al.*,

2005). Interestingly, location-specific barriers have been consistently mentioned over the years. These recurring difficulties diminish the effectiveness of business processes (Platts and Song, 2010), as they can obstruct coordination, jeopardize product quality, and ultimately increase total GS costs (Demeter, 2014; Handfield, 1994; Nassimbeni and Sartor, 2007).

The second type of external barrier is the institutional barrier, a term used to capture information deficiency, differences in normative systems, infrastructure deficiencies, and customs clearance barriers. Difficulties in finding adequate information and differences in normative systems are significant obstacles to GS (Nassimbeni, 2006; Subramanian *et al.*, 2015), which can even prompt firms to reverse their GS decisions (Kinkel, 2014). Poor infrastructure and outdated customs procedures (Zeng and Rosetti, 2003; Quintens *et al.* 2005) also inhibit the flow of goods (Sawhney and Sumukadas, 2005). Such institutional challenges tend to characterize developing countries rather than developed economies (Sawhney and Sumukadas, 2005; Platts and Song, 2010). Moreover, the institutional distance between buyer and supplier countries may prevent buying firms from conducting GS (Busse *et al.*, 2016c; Wilhelm *et al.* 2016). These difficulties ultimately impede the prospects of achieving competitive advantage through GS (Platts and Song, 2010).

The third type of barrier – supply base issues engendered by problems between buyer and supplier, contractual problems, and insufficient supplier skills – interestingly received the least attention in previous GS research. According to Nassimbeni (2006), the challenges of establishing positive relations with foreign suppliers are among the strongest GS barriers. Evidence of relationship and contractual problems stems mostly from case studies on emerging-economy suppliers, especially China (e.g., Carter *et al.*, 1997; Horn *et al.*, 2013; Jia and Zsidisin, 2014). Issues concerning, e.g., different interpretations of flexibility in contracts (Horn *et al.*, 2013) and the difficulty in keeping promises (Fredriksson and Jonsson, 2009) may reflect some of the problems, but suppliers' lack of skills and failure to recognize project complexity are also important contemporary issues in low-cost country sourcing (Horn *et al.*, 2013; Subramanian *et*

al., 2015).

Some authors indicated that a number of barriers have become less severe due to economic and political changes, such as the reduction of trade barriers and customs burdens (Holweg *et al.*, 2011; Mol *et al.*, 2005). External barriers, however, remain important impediments in GS practices, especially when sourcing from developing countries (Min, 1994; Platts and Song, 2010).

Risks and uncertainties. In the GS context, risks and uncertainties can take a number of forms. They appear in 50 percent (42 of 83) of the works studied. Here, they are grouped into environmental, network, and organizational categories, following Jüttner *et al.* (2003). Environmental uncertainties and risks stem from interactions between the supply chain and the external environment, whereas network uncertainties and risks emerge from interactions between supply chain partners. Finally, organizational uncertainties and risks lie within the boundaries of the firm (Jüttner *et al.*, 2003). Detailed examples of these categories are presented in Table IV.

----- Insert Table IV here -----

Environmental uncertainties and risks are represented by political instability, currency fluctuations, natural disasters, and security issues. Network risks and uncertainties are constituted by variation in delivery systems, demand uncertainty, and supply risk. Both the environmental and network categories attracted high research attention (present in 72 percent of all the works concerning GS risks) and appear throughout the 32-year timeframe of the analyzed literature. Researchers have indicated that environmental uncertainties often induce network uncertainties. For example, a natural disaster or political turmoil might cause supply disruption (Zhu, 2015). The third domain of risks and uncertainties is the organization, which was considered in around 30 percent of publications concerning risks in GS. Within this category, a distinction is made between operational risk (e.g., inventory or tool ownership) and labor-related issues, which both appeared in about 25 percent of the sample. Organizational uncertainties were the least-researched type of risk within this paper's context, and research interest started to emerge only from the 2000s. This reaffirms the observation of Sydow and Frenkel (2013), who asserted that, in particular, labor as

source of uncertainty and risk had been neglected by researchers focusing mainly on the environment, demand, and supply as potential risk sources. This is surprising, as labor-related uncertainties can contribute to operational problems, for example, with supply delays or product quality issues (Sydow and Frenkel, 2013). Many uncertainties inherent in the GS context are not considered or receive only cursory attention in managerial decision-making (Ellram *et al.*, 2013), despite their potential to yield in serious consequences.

Internal factors

Internal factors comprise internal barriers and decision-making biases. Based on Quintens *et al.* (2006), internal barriers are defined as intra-organizational factors that either increase the difficulty of pursuing GS or contribute to its undesirable effects. Biases in the GS context are defined as judgments in supply management decision-making that deviate from assumptions of “homo economicus” (Carter *et al.*, 2007), i.e., the belief that an individual is capable of making fully-informed rational decisions (Simon, 1955). Internal factors and their detailed examples are presented in Table V.

----- Insert Table V here -----

Internal barriers. Internal barriers received the least research attention, accounting for 30 percent (25 of 83) of all the works considering GS downsides. Internal barriers are represented by insufficient cross-functional integration, purchasing personnel problems, global coordination difficulties, and sustainability challenges.

Empirical research indicates that insufficient cross-functional integration might hinder GS efforts (Horn *et al.*, 2014; Moses and Åhlström, 2008). Other studies suggest that misaligned functional goals result in business conflicts (Chung *et al.*, 2004; Trent and Monczka, 2003b) and the lack of a holistic view (Carter *et al.*, 2008; Subramanian *et al.*, 2015). Horn *et al.* (2013) named divergent functional goals as an internal reason for GS project failures. In turn, the lack of a holistic perspective is responsible for disruptions in GS decision-making (Moses and Åhlström, 2008) and might cause cost increases in GS projects (Stratton and Warburton, 2006).

Apart from the difficulties of cross-functional cooperation, a great challenge for GS is establishing collaborative strategies with subsidiaries (Trautmann *et al.*, 2009; Zorzini *et al.*, 2014). Larsen *et al.* (2013) observed that a high level of separation of activities combined with a large amount of process interdependence leads to an increase in organizational complexity and complex global coordination. Moreover, managers often neglect the significance of complex coordination strategies that ought to embrace all tiers of the supply network as a precondition of effective GS management (Hultman *et al.*, 2012; Najafi *et al.*, 2013).

Another internal barrier to GS is the lack of sufficiently qualified personnel (Handfield, 1994; Nassimbeni, 2006; Trent and Monczka, 2003). This deficiency is suggested to obstruct GS processes and supply base management (Nassimbeni, 2006). Further aspects that can undermine GS are sustainability challenges: given the expectation to secure the lowest possible price while simultaneously ensuring ecological and social sustainability (Goebel *et al.*, 2012), the economic dimension may be negatively influenced, which could reduce GS efforts (Gualandris *et al.*, 2014).

Decision-making biases. Biases were the second-least researched antecedent category in this study's sample, present in 34 percent (28 of 83) of all the works considering GS downsides. This review identified four types of bias: estimation bias, isomorphism, overlooking important factors, and relying on creative intuition. Although a vast number of biases have been explored in the decision-making literature, their integration in the GS context remains nascent. Because of great complexity and uncertainty in GS, buyers might not follow a rational-choice approach but instead decide rather chaotically (Liang and Parkhe, 1997), causing bias to strongly affect GS decisions (Carter *et al.*, 2007).

Estimation bias is predominantly caused by the inherent complexity of the GS decision-making process (Larsen *et al.*, 2013; Stanczyk *et al.*, 2015). This is reflected in how the dynamic decision-making criteria for GS are weighted. For example, low labor costs may be perceived as paramount (Holweg *et al.*, 2011; Johnson *et al.*, 2013; Young *et al.*, 2009), or savings may be overestimated as unrealistically low prices are expected from distant suppliers (Trent and

Monczka, 2003a).

Another type of bias derives from overlooking important factors in decision-making (Blackhurst *et al.*, 2005; Monczka and Giunipero, 1984; Petersen *et al.*, 2000). There is an inclination to avoid factors that are time-consuming to obtain and evaluate, leading, e.g., to reliance on attractive unit prices without investigating the total costs of ownership (Gray *et al.*, 2013; Young *et al.*, 2009).

Creative intuition – using a high degree of individual preference and subjective judgment (Chan *et al.*, 2008; Stanczyk *et al.*, 2015) – is particularly evident in the process of selecting suppliers from emerging countries. Purchasing managers tend to stereotype and may be guided by perceptions of a country or region (Carter *et al.*, 2008; Thorelli and Glowacka, 1995). Authors also reported nationalistic feelings among buyers and loyalty towards domestic suppliers (Fawcett and Birou, 1992; Quintens *et al.*, 2005).

In the GS context, increased attention has recently been focused on the phenomenon of isomorphism (Najafi *et al.*, 2013; Stanczyk *et al.*, 2015), also termed “the bandwagon effect” (Gray *et al.*, 2013) or “mimetic behavior” (Horn *et al.*, 2013). Companies may decide to adopt specific practices because their competitors or other companies have adopted them (Golini and Kalchschmidt, 2015). This may cause firms to neglect thoroughly analyzing the consequences of GS decisions (Gelderman *et al.*, 2016). Estimation bias and the bias of overlooking important factors are suggested to be linked to the total costs of GS; moreover, as Fine (2013) observed, as “low-bid-wins mentality” slowly disappears, companies realize that a low price may mean high risk, which may in turn lead to high total cost. Conversely, there is evidence linking isomorphism to negative GS performance (Horn *et al.*, 2013) and it is suggested to cause unjustified “move back” decisions (Gray *et al.*, 2013).

Effects

The framework comprises operational and financial performance effects caused by the previously discussed antecedents. Operational performance concerns the functioning of the firm, while

financial performance effects manifest in GS costs.

Operational performance. There is a distinction in this category between operational problems and long-term consequences. The former are difficulties in pursuing GS due to external or internal factors, whereas the latter are more complex long-term effects resulting from GS decisions. Operational effects are illustrated in Table VI.

----- Insert Table VI here -----

Operational problems. Among the investigated papers, operational problems were considered in 52 percent of the articles (43 of 83). A distinction is made between the following operational problems: long lead times, high inventory levels, operational complexity, and quality issues.

Long and variable lead times were the most frequently cited problem associated with GS in the sample (Birou and Fawcett, 1993; Chaodong *et al.*, 2008; Levy, 1995). The researchers tended to refer to remote sources, entailing multiple means of transport and requiring large-batch orders (Golini and Kalchschmidt, 2015). Long lead times were not discussed separately, but rather in relation to other problems, such as poor delivery reliability (Cavusgil *et al.*, 1993; Fawcett and Birou, 1992; Stratton and Warburton, 2006).

Keeping inventory levels low is another problem faced by companies with increased involvement in GS (Carter *et al.*, 1997; Golini and Kalchschmidt, 2011; Jain *et al.*, 2014; Schneider *et al.*, 2013). Given longer and variable lead times, companies might decide to keep higher inventory levels to avoid stock-outs and halts in production (Chaodong *et al.*, 2008; Stratton and Warburton, 2006). Some authors indicated, however, higher inventory levels are not an inevitable consequence of longer distances. Jain *et al.* (2014) found that inventory levels depended on the extent of involvement in GS and on supplier portfolio management strategies: greater involvement in GS, e.g., resulted in higher inventory investment, but increasing the number of suppliers could mitigate this rise, e.g., by switching from single to dual sourcing. Similarly, Golini and Kalchschmidt (2015) found that the impact of GS on inventory levels was contingency driven:

only companies with fewer than 100 suppliers reduced inventory levels after investment.

Another common problem is increased operational complexity (Creazza *et al.*, 2010; Manuj and Mentzer, 2008; Subramanian *et al.*, 2015). Greater involvement in GS is suggested to increase complexity through the enhanced interaction and coordination needed for processes and products (Horn *et al.*, 2013; Manuj and Mentzer, 2008) and the requirement to manage suppliers worldwide (Creazza *et al.*, 2010; Demeter, 2014). Moreover, studies imply that the degree of supply base complexity affects transaction costs and supply risk (Choi and Krause, 2006).

Interestingly, quality issues were the least-represented operational problem in the sample, attracting noteworthy research attention only from 2000 onwards. Some GS studies tended to mention quality concerns as problems for sustainable GS operations, yet without focusing the analysis on these types of problems (Demeter, 2014; Ruamsook *et al.*, 2007; Weber *et al.*, 2010). In a study that thoroughly investigated product quality issues, Tse and Tan (2012) asserted the great difficulty of controlling the product quality in a multi-layered supply chain with low traceability of material origins. Consequently, product recalls resulting from quality issues in recent years were suggested to have negative impacts on company performance (Steven *et al.*, 2014; Voss *et al.*, 2009).

Long-term consequences. This category was the least investigated in the sample, with only 13 percent of articles (11 of 83) considering the long-term consequences of GS. The literature covers four possible direct implications of GS failure: withdrawal, retrenching, termination of the business relationship, and supply base restructuring.

Among top management, there seems to be a strong belief in the beneficial effects of GS (Steinle and Schiele, 2008). This belief is transferred to procurement managers, who tend to have unrealistically high expectations and engage in potentially suboptimal GS sourcing projects. Correspondingly, a high share of GS projects fail (Horn *et al.*, 2013). Following Horn *et al.* (2013), GS failure can be understood as the lack of expected benefits, either because the project did not generate any savings (financial dimension) or because the products were not delivered as agreed

(operational dimension). Based on their investigation of the implications of sourcing from China, Horn *et al.* (2013) revealed that most of the sourcing projects they studied did not meet their expected benefit and fewer than one quarter of them were fully successful in terms of operational and financial performance. This view is shared by other authors, who argue that cost advantages tend to disappear when considering total acquisition costs (Steinle and Schiele, 2008; Trent and Monczka, 2003a). Moreover, GS is responsible for no more than one fifth of all potential procurement savings (Schiele *et al.*, 2011).

Based on their case studies, Jia *et al.* (2014) described withdrawal from supply markets when cost savings were eroded, and re-trenching or moving back to lower levels of GS (e.g., recalling decision-making power from a local IPO). The termination of business relationships (Jia and Zsidisin, 2014; Manuj and Mentzer, 2008) might occur because of low supplier reliability (Jia and Zsidisin, 2014; Voss *et al.*, 2009) or supplier misconduct (Reuter *et al.*, 2010).

After withdrawal and termination of business relationships, some companies were found to face new challenges related to restructuring the supply base, such as the network effect (Hultman *et al.*, 2012) or the “ugly twin” phenomenon of switching to a more expensive supplier from a high-wage country (Horn *et al.*, 2013).

Financial performance. This was mainly addressed in the literature with regard to the basic and additional costs of GS for the buying firm. A detailed overview of GS-related costs is shown in Table VII.

----- Insert Table VII here -----

A distinction is made between four cost categories, which together constitute the total cost of GS: direct, overhead, dynamic, and hidden costs, as shown in Figure 4. Costs are referred to in 50 percent of the studied articles (42 of 83); of these, around half consider direct costs, 60 percent reference overhead costs, and both dynamic and hidden costs are covered in around 30 percent of these articles.

----- Insert Figure 4 here -----

Direct costs. The direct costs of GS are well elaborated in the literature (Holweg *et al.*, 2011; Johnson *et al.*, 2013; Platts and Song, 2010; Young *et al.*, 2009). Based on comprehensive cost analyses of GS (e.g., Young *et al.*, 2009; Zeng and Rosetti, 2003), direct GS costs include: price, transportation, inventory, and customs.

Overhead costs. These costs have received some attention in the prior literature (Gelderman and Semeijn, 2006; Kaufmann and Carter, 2006; Tachizawa and Gimenez, 2010; Trent and Monczka, 2003a). They comprise sourcing, transaction, and coordination costs. Sourcing costs may include the cost of managing global suppliers, learning costs, and supplier switching costs (Kaufmann and Carter, 2006; Tachizawa and Gimenez, 2010). Transaction costs are assumed to be a crucial aspect in procurement decisions and represent a significant proportion of the total cost (Schneider *et al.*, 2013). They may include communication costs, negotiating and contracting costs, and order processing costs (Kamann and Van Nieulande, 2010; Teng and Jaramillo, 2005; Zeng and Rossetti, 2003). Coordination costs arise from the time and effort invested by purchasing managers and stakeholders involved in coordinating activities across sites (Trautmann *et al.*, 2009).

Dynamic costs. These can be understood as unexpected additional direct costs (Holweg *et al.*, 2011). They were the least-discussed cost category in the literature, reflecting that researchers have only recently focused on companies' tendency to underestimate the dynamics of assessment criteria (Fredriksson and Jonsson, 2009). Dynamic costs are partly the result of an inherent assumption that demand is stable and remains unchanged over time (Blackhurst *et al.*, 2005; Holweg *et al.*, 2011). Other costs within this category are the lost sales resulting from long lead times, stock shortages, quality failures, and obsolete materials caused by inaccurate forecasts (Holweg *et al.*, 2011). Further dynamic costs include expedited shipment, line-down, and overtime costs (Blackhurst *et al.*, 2005; Platt and Song, 2010).

Hidden costs. This category was also insufficiently investigated in the literature. These are indirect costs caused by the wider business environment; since they are not directly related to

global supply chain operations, they are difficult to anticipate (Holweg *et al.*, 2011). They may arise from currency fluctuations, intellectual property rights, increases in labor costs, unexpected travel (for coordination), unexpected supplier switching, and supply chain disruption (Holweg *et al.*, 2011; Larsen *et al.*, 2013). Current models of total costs tend to omit hidden costs (Blackhurst *et al.*, 2005).

Discussion

Scholarly implications and an agenda for future research

Faced with scattered and unstructured knowledge on the downsides of GS, this paper seeks to contribute to a better understanding of GS through gathering, structuring, and synthesizing findings on the potential negative effects associated with GS and their operational and financial consequences. The study's authors suggest that researchers should investigate the problems accompanying GS in greater depth to develop more nuanced and balanced views of GS and to open promising new research avenues. Following Zimmer *et al.* (2016), this paper proposes a detailed list of future GS research topics in this section.

Despite increased globalization, the reduction of trade barriers, and the development of infrastructure in the emerging economies, external barriers related to location, institutions, and supply bases remain pertinent for implementing and conducting GS operations, featuring in GS research throughout the last 32 years. Interestingly, scholars have reported on numerous obstacles and elaborated on their importance for GS operations, although not always consistently. For example, according to Nassimbeni (2006), institutional and location-specific barriers are moderately important as opposed to supply base issues; conversely, Subramanian *et al.* (2015) and Platts and Song (2010) find intangible factors, such as culture, infrastructure, policy, and regulations, to be dominant. Given these mixed results, this paper calls for research exploring the boundary conditions surrounding the detrimental effects exerted by external barriers on GS operations.

Most previous studies have adopted “Western” perspectives, providing insight for

developed countries on operations in developing economies. Research into external barriers on the supply side would provide important complementary findings to those of the rather focal firm-dominant existing research. Firms from emerging economies also source globally and may face different external obstacles. Investigating comparisons of these perspectives would be a valuable line of research and could help to disentangle the underlying problems and downsides of GS.

Risks and uncertainties in GS are rather well-researched topics in the operations literature (Christopher *et al.*, 2011; Deane *et al.*, 2009; Manuj and Mentzer, 2008; Vickery *et al.*, 1993). From the mid-2000s, there has been increased interest in the topics of environmental and network uncertainties and risks relating to GS: the result of natural disasters and socio-economic conflicts. Organizational risks captured some interest only recently. Scholars have recognized that many risks and uncertainties are interconnected and affect each other. This, together with the link between risks/uncertainties and external barriers, drives GS complexity and constitutes an important research field which is yet to be covered. In this regard, recent studies have proposed contextual barriers to global supplier development and contextual influences on sustainability risks in global supply chains (Busse *et al.*, 2016a, 2016c; Wilhelm *et al.*, 2016). Greater understanding of interconnections and correlations in the occurrence of external factors is, therefore, needed. Groundwork in this area has been provided by Levy (1995), who developed an empirical model in which long distance interacts with network uncertainties to generate substantial costs that greatly exceed management expectations. Given that disruption risks can be devastating for organizations (Wagner and Bode, 2006), it is suggested that researchers investigate how risks/uncertainties and different cost dimensions are linked. This calls specifically for research collecting objective data. More research is also needed in the area of organizational risks/uncertainties in the GS context.

The importance of internal barriers undermining GS operations seems to have been underestimated and is rather neglected in the existing research. This is surprising, as excellence and alignment in internal operations is a precondition to successful GS (Ellinger *et al.*, 2006; Petersen *et al.*, 2000; Trent and Monczka, 2003a). Coordination problems in GS are implied to

lead to higher overhead costs (Trautmann *et al.*, 2009), whereas immature cross-functional integration is suggested to hinder effective execution of GS strategies (Horn *et al.*, 2014; Trent and Monczka, 2003b). The prior literature fails to offer adequate insight regarding the implications of purchasing personnel problems and sustainability challenges. A deeper understanding of the role of internal problems and their potential effects on GS performance is needed. Both survey-based research and investigations of group behavior in experiments or vignette studies could lead to new insights.

The most astonishing finding was the imbalance in the number of contributions on decision-making biases, their impact on GS performance, and the long-term consequences, compared to other antecedents of GS. Initially, bias appeared in GS research in the form of stereotyping behavior in the global supplier selection process (Carter *et al.*, 2008; Min, 1994; Thorelli and Glowacka, 1995). Only recently has bias been discovered as a factor potentially responsible for the high total cost and/or failure of GS. Overlooking important cost factors and failing to make holistic assessments of criteria for GS are both suggested to contribute to higher hidden and dynamic costs, which can cause expected savings to disappear (Holweg *et al.*, 2011; Schiele *et al.*, 2011). According to some authors, this can also be caused by isomorphism, which induces companies to mimic the GS behavior of other companies, neglecting to properly consider that the underlying cost assumptions and business case determinants may not hold true (Horn *et al.*, 2013; Najafi *et al.*, 2013). Although decision-making biases have received some recent attention, their recognition in the GS literature is insufficient given their influence on GS performance. More research on the importance and scale of the impact of decision-making bias on GS financial performance and their role in overall GS trends is needed. Case studies and conceptual research could identify ways to mitigate the impact of bias. Horn *et al.* (2013) previously indicated the value of investigating the explanatory patterns related to isomorphism in greater depth, in addition to the ways in which managers think. Furthermore, Larsen *et al.* (2013) suggested using qualitative research to better address the reasons for ignoring or underestimating

hidden costs in decision-making. This could contribute to more realistic views on the GS phenomenon.

Regarding operational problems, Horn *et al.* (2013) posited that better operational performance measures were needed to gain a realistic picture of GS operations, as opposed to traditional reliance on financial performance measures. There is no unified and standardized approach towards measuring the operational performance of GS; therefore, a comprehensive approach with consistent, comparable indicators is needed (Mol *et al.*, 2005). Moreover, the role of context in the relationships between some operational problems is important: for example, Golini and Kalchschmidt (2015) and Jain *et al.* (2014) found evidence of the contradictory effects of increased operational complexity on inventory levels, depending on context.

Operational problems affect the total cost of GS across all cost categories. Mitigating them, however, is very complicated and depends on the selected trade-off. Choi and Krause (2006), for example, suggested that increasing GS complexity augments transaction costs and supply risk, but reducing supply complexity, while cost-efficient, could diminish a buying firm's competitiveness. Findings show that GS does not necessarily lead to superior operational performance; rather, it is essential to compensate for any increased GS involvement. Thus, future research could further investigate the notion of trade-offs with regard to GS benefits and operational problems. Research on GS could also benefit from case studies identifying trade-offs between operational problems under different contingencies (Blackhurst *et al.*, 2005).

Financial performance is not a new topic in the GS field: in particular, direct and overhead costs are well recognized and discussed among researchers (e.g., Handfield, 1994; Schiele *et al.*, 2011). Only recently, however, has the importance of dynamic and hidden costs been recognized (Holweg *et al.*, 2011). A few cases reported that the expected benefits of factor cost advantages were more than offset by the hidden and dynamic expenses (Horn *et al.*, 2013; Platts and Song, 2010). As these costs are difficult to anticipate, they can be decisive of the success or failure of GS (Schiele *et al.*, 2011; Stratton and Warburton, 2006). Despite the difficulty in measuring

dynamic and hidden costs, it may be possible to do so. Future research could contribute to both better understanding of hidden and dynamic costs and development of their measures. Case studies, for example, could investigate pre-GS cost planning and post-GS realized cost. The scale of hidden and dynamic costs and their impact on the total cost of GS could be further researched (Holweg *et al.*, 2011).

According to the reviewed literature, performance effects are mainly shaped by external factors and influenced by decision bias. The scholars indicated links between external barriers or risks and operational problems. For example, studies evidenced a link between longer distances and higher inventories (Golini and Kalchschmidt, 2015; Jain *et al.*, 2014) or empirically tested the relation between supply base complexity and supply risk (Lorentz *et al.*, 2016). Similarly, links between the external barriers, risks, and costs are suggested. For example, cultural and institutional barriers might result in higher overhead costs and hidden costs (Cavusgil *et al.*, 1993; Holweg *et al.*, 2011), while risks and uncertainties might contribute to higher hidden costs (Holweg *et al.*, 2011; Min, 1994). Further relationships between external factors and operational or financial effects could be investigated. In particular, future research could study the boundary conditions to such relationships (Fredriksson and Jonsson, 2009), in addition to further performance impacts.

The long-term negative consequences of GS also require further investigation. Current discussions around reshoring/backshoring tend to focus on manufacturing processes (e.g., Ellram *et al.*, 2013; Kinkel and Maloka, 2009). However, a “move back” can also refer to purchasing processes. This study collected evidence from literature on the reverse move from an offshore to a local supply base (Jia *et al.*, 2014) and regarding the switch from single offshore sourcing to dual sourcing with one supplier offshore and the other local (Boute and Van Mieghem, 2015; Stratton and Warburton, 2006): both are examples of responses to GS project failure. Thus, the cascading implications of GS failure provide another line of research. This could involve the forms they take and the costs related to the long-term consequences and failures of GS. Case study research and dyadic data collection combined with objective data could provide solid evidence in this regard.

Managerial implications

Managers are responsible for steering organizations toward achievement of their performance goals (Cunningham, 1977; Richard *et al.*, 2009). In evaluating alternative paths for organizations, their managers must decide whether the associated benefits are worth the respective costs and investments (Busse *et al.*, 2016b; Hansen and Wernerfelt, 1989). To facilitate managerial decision-making, managers therefore require an in-depth understanding, in relation to a given option, of not only the associated upsides but also the related downsides and pitfalls. Against this background, this study illuminates important managerial implications for GS practice.

Based on the analysis of prior research, this work identified detrimental GS antecedent effects and potential routes through which they can jeopardize performance. Thereby, the study uncovered implied causal relationships of high relevance for managers. The study fosters managers' conceptual understanding of the reasons for GS failure and for unrealized performance expectations related to GS. Managers are, therefore, advised to consider a broad array of aspects in their decision-making on GS. Awareness of antecedent effects may foster practitioners' expectations management in their GS efforts, and may inform managerial decision-making related to starting, enhancing, or reducing a firm's involvement in GS. The presence of external and internal factors hindering GS necessitates investing greater effort to overcome them and achieve the desired results. Thus, managers should evaluate the evidenced and suggested performance effects in this paper to both broaden their perspective of possible unfavorable GS scenarios and develop their preparedness for and resilience to them.

Further, practitioners are advised to factor the cumulative impact of external barriers, risks, and potential dynamic and hidden costs into their cost-benefit analysis. Careful calculation allows for more accurate assessment of the potential savings and for a better measure of GS success or failure. Since external business environments are dynamic, the present assumptions might not endure in the future and will need to be adapted. This requires constant evaluation of business environments and flexibility in modifying the chosen strategy. Implementing a mechanism for

consistent monitoring and controlling of dynamic and hidden costs could enable or facilitate agile reactions. It is also recommended to carefully consider the trade-offs involved in each business decision and to systematically analyze idiosyncratic circumstances. Dynamic cost modelling or scenario analyses are potentially valuable decision-support tools. In this respect, a third specific managerial implication of this study is that it cautions managers against unjustified optimism regarding GS, encouraging them to maintain a holistic view. This view should be based on the associated GS benefits and costs and on realistic estimates of total performance, which integrate the short- to medium-term operational performance effects and the potential long-term consequences, including dynamic and hidden costs.

Finally, it is essential for companies to recognize their internal “maturity” and the compatibility of the organization with GS to maximize the prospects of expected benefits being achieved. For example, at companies whose cross-functional integration is immature or whose purchasing personnel is not sufficiently qualified, regional or local sourcing may be relatively more advisable than sourcing from elsewhere, thereby avoiding exposure to the excessive costs associated with overseas sourcing, given the lack of experience or lack of considering all aspects. In this respect, it is also suggested that managers should analyze their decision-making for potential bias, ensuring that costs are accurately estimated and an “industry recipe” is not blindly followed.

Given all of the above, managers may occasionally decide that an expected GS outcome does not justify the effort needed, potentially leading them to reconsider their decision regarding GS involvement. Following Schiele *et al.* (2011), the authors of this study do not consider GS to be a self-evident outcome of globalization and means to gain competitive advantage; rather, the findings of this literature review indicate that GS should be well analyzed and deliberate business decisions should be taken on a case-by-case base, as there is no universal solution.

Conclusion

This study contributes to better understanding of the operational and financial consequences of problems concerning global sourcing. It elucidates areas of operations management that are

especially important with respect to negative long-term consequences and indicates areas for further investigation. This study is limited in that it focuses on the buying aspect of sourcing, particularly on buying goods or semi-finished goods from global markets. The risk and benefit factors of global sourcing of services may differ from those related to goods (Trevelen and Sweikhart, 1988). Future research could examine whether the framework of global sourcing downsides can be applied to the services sector. Another interesting research avenue would be to examine whether this conceptual model is applicable to firms from emerging market economies. Hopefully this paper enables researchers and practitioners to widen their perspective on the phenomenon of global sourcing, encouraging further, more nuanced research on global sourcing, including not only its benefits but also its dark side.

References

- Agndal, H., (2006), "The purchasing market entry process—A study of 10 Swedish industrial small and medium-sized enterprises", *Journal of Purchasing & Supply Management*, Vol.12, No.4, pp.182-196.
- Alguire, M.S. and Frear, C.R., (1994), "An examination of the determinants of global sourcing strategy", *Journal of Business & Industrial Marketing*, Vol.9, No.2, pp.62-75.
- Birou, L.M. and Fawcett, S.E., (1993), "International Purchasing: Benefits, Requirements, and Challenges", *International Journal of Purchasing & Materials Management*, Vol.29, No.2, pp.28-37.*
- Blackhurst, J., Craighead, C.W., Elkins, D. and Handfield, R.B., (2005), "An empirically derived agenda of critical research issues for managing supply-chain disruptions", *International Journal of Production Research*, Vol.43, No.19, pp.4067-4081.*
- Boute, R.N. and Van Mieghem, J.A., (2015), "Global Dual Sourcing and Order Smoothing: The Impact of Capacity and Lead Times", *Management Science*, Vol.61, No.9, pp.2080-2099.*
- Bozarth, C., Handfield, R. and Das, A., (1998), "Stages of global sourcing strategy evolution: an exploratory study", *Journal of Operations Management*, Vol.16, No.2/3, pp.241-255.
- Busse, C., Kach, A. and Bode, C., (2016a), "Sustainability and the False Sense of Legitimacy: How Institutional Distance Augments Risk in Global Supply Chains", *Journal of Business Logistics*, Vol.37, No.4, in press.
- Busse, C., Mahlendorf, M.D. and Bode, C., (2016b), "The ABC for Studying the Too-much-of-a-good-thing Effect: A Competitive Mediation Framework Linking Antecedents, Benefits, and Costs", *Organizational Research Methods*, Vol.19, No.1, pp.131-153.
- Busse, C., Schleper, M.C., Niu, M. and Wagner, S.M., (2016c), "Supplier development for sustainability: contextual barriers in global supply chains", *International Journal of Physical Distribution & Logistics Management*, Vol.46, No.5, pp.442-468.*
- Calantone, R. and Vickery, S.K., (2009), "Special topic forum on using archival and secondary data sources in supply chain management research", *Journal of Supply Chain Management*, Vol.45, No.2, pp.94-95.
- Carter, C.R., Kaufmann, L. and Michel, A., (2007), "Behavioral supply management: a taxonomy of judgment and decision-making biases", *International Journal of Physical Distribution & Logistics Management*, Vol.37, No.8, pp.631-669.
- Carter, J.R., Maltz, A., Tingting, Y. and Maltz, E., (2008), "How procurement managers view low cost countries and geographies: A perceptual mapping approach", *International Journal of Physical Distribution & Logistics Management*, Vol.38, No.3, pp.224-243.*
- Carter, J.R. and Narasimhan, R., (1996), "Is Purchasing Really Strategic?", *International Journal of Purchasing & Materials Management*, Vol.32, No.1, pp.20-28.
- Carter, J.R., Pearson, J.N. and Li, P., (1997), "Logistics barriers to international operations: The case of the People's Republic of China", *Journal of Business Logistics*, Vol.18, No.2, pp.129-145.*
- Cavusgil, S.T., Yaprak, A. and Poh-Lin, Y., (1993), "A Decision-making Framework for Global Sourcing", *International Business Review*, Vol.2, No.2, pp.143.*
- Chan, F.T.S., Kumar, N., Tiwari, M.K., Lau, H.C.W. and Choy, K.L., (2008), "Global supplier selection: a fuzzy-AHP approach", *International Journal of Production Research*, Vol.46, No.14, pp.3825-3857.*
- Chaodong, H., Dresner, M. and Windle, R.J., (2008), "Impact of global sourcing and exports on US manufacturing inventories", *International Journal of Physical Distribution & Logistics Management*, Vol.38, No.6, pp.475-494.*
- Choi, T.Y. and Krause, D.R., (2006), "The supply base and its complexity: Implications for transaction costs, risks, responsiveness, and innovation", *Journal of Operations Management*, Vol.24, No.5, pp.637-652.*
- Christopher, M., Mena, C., Khan, O. and Yurt, O., (2011), "Approaches to managing global sourcing risk", *Supply Chain Management*, Vol.16, No.2, pp.67-81.*
- Chung, W.W.C., Yam, A.Y.K. and Chan, M.F.S., (2004), "Networked enterprise: A new business model for global sourcing", *International Journal of Production Economics*, Vol.87, No.3, pp.267-280.*
- Cohen, J., (1960), "A Coefficient of Agreement for Nominal Scales", *Educational and Psychological Measurement*, Vol.4, No.20, pp.37-46.

- Contractor, F.J., Kumar, V., Kundu, S.K. and Pedersen, T., (2010), "Reconceptualizing the firm in a world of outsourcing and offshoring: The organizational and geographical relocation of high-value company functions", *Journal of Management Studies*, Vol.47, No.8, pp.1417-1433.
- Creazza, A., Dallari, F. and Melacini, M., (2010), "Evaluating logistics network configurations for a global supply chain", *Supply Chain Management*, Vol.15, No.2, pp.154-164.*
- Cunningham, J.B., (1977), "Approaches to the evaluation of organizational effectiveness", *Academy of Management Review*, Vol.2, No.3, pp.463-474.
- Deane, J.K., Craighead, C.W. and Ragsdale, C.T., (2009), "Mitigating environmental and density risk in global sourcing", *International Journal of Physical Distribution & Logistics Management*, Vol.39, No.10, pp.861-883.*
- Demeter, K., (2014), "Operating internationally—The impact on operational performance improvement", *International Journal of Production Economics*, Vol.149, pp.172-182.*
- Denyer and Tranfield 2009. Producing a systematic review. In: BRYMAN, B. A. (ed.) *The SAGE handbook of organizational research methods*. Sage Publications Ltd, London.
- Durach, C.F., Wieland, A. and Machuca, J.A.D., (2015), "Antecedents and dimensions of supply chain robustness: a systematic literature review", *International Journal of Physical Distribution & Logistics Management*, Vol.45, No.1/2, pp.118-137.
- Ellinger, A.E., Keller, S.B., Hansen, J.D., (2006), "Bridging the Divide between Logistics and Marketing: Facilitating Collaborative Behavior", *Journal of Business Logistics*, Vol.27, No.2, pp.1-27
- Ellram, L.M. and Siferd, S.P., (1993), "Purchasing: The Cornerstone of the Total Cost of Ownership", *Journal of Business Logistics*, Vol.14, No.1, pp.163-184.
- Ellram, L.M., Tate, W.L. and Petersen, K.J., (2013), "Offshoring and Reshoring: An Update on the Manufacturing Location Decision", *Journal of Supply Chain Management*, Vol.49, No.2, pp.14-22.
- Fagan, M.L., (1991), "A Guide to Global Sourcing", *Journal of Business Strategy*, Vol.12, No.2, pp.21.
- Fawcett, S.E. and Birou, L.M., (1992), "Exploring the Logistics Interface between Global and JIT Sourcing", *International Journal of Physical Distribution & Logistics Management*, Vol.22, No.1, pp.3-14.*
- Fine, C., (2013), "Intelli-Sourcing to Replace Offshoring as Supply Chain Transparency Increases", *Journal of Supply Chain Management*, Vol.49, No.2, pp.6-7.*
- Fratocchi, L., Ancarani, A., Barbieri, P., Di Mauro, C., Nassimbeni, G., Sartor, M., Vignoli, M., Zanoni, A., (2015), "Manufacturing Back-Reshoring as a Nonlinear Internationalization Process", in Van Tulder, R., Verbeke, A., Drogendijk, R. (Ed.), *The Future of Global Organizing (Progress in International Business Research, Volume 10)*, Emerald Group Publishing Limited, pp.365 - 403
- Fratocchi, L., Di Mauro, C., Barbieri, P., Nassimbeni, G. and Zanoni, A., (2014), "When manufacturing moves back: Concepts and questions", *Journal of Purchasing & Supply Management*, Vol.20, No.1, pp.54-59.
- Fredriksson, A. and Jonsson, P., (2009), "Assessing consequences of low-cost sourcing in China", *International Journal of Physical Distribution & Logistics Management*, Vol.39, No.3, pp.227-249.*
- Gelderman, C.J. and Semeijn, J., (2006), "Managing the global supply base through purchasing portfolio management", *Journal of Purchasing & Supply Management*, Vol.12, No.4, pp.209-217.*
- Gelderman, C.J., Semeijn, J. and Plugge, N., (2016), "The role of critical incidents in the development of global sourcing-results of an in-depth case study", *Journal of Purchasing and Supply Management*, Vol.22, No.3, pp.214-224.*
- Goebel, P., Reuter, C., Pibernik, R. and Sichtmann, C., (2012), "The influence of ethical culture on supplier selection in the context of sustainable sourcing", *International Journal of Production Economics*, Vol.140, No.1, pp.7-17.*
- Golini, R. and Kalchschmidt, M., (2011), "Moderating the impact of global sourcing on inventories through supply chain management", *International Journal of Production Economics*, Vol.133, No.1, pp.86-94.*
- Golini, R. and Kalchschmidt, M., (2015), "Managing inventories in global sourcing contexts: A contingency perspective", *International Journal of Production Economics*, Vol.165, pp.64-78.*
- Gray, J.V., Skowronski, K., Esenduran, G. and Johnny Rungtusanatham, M., (2013), "The Reshoring Phenomenon: What Supply Chain Academics Ought to know and Should Do", *Journal of Supply Chain Management*, Vol.49, No.2, pp.27-33.*

- Gualandris, J., Golini, R. and Kalchschmidt, M., (2014), "Do supply management and global sourcing matter for firm sustainability performance? An international study", *Supply Chain Management*, Vol.19, No.3, pp.258-274.*
- Handfield, R.B., (1994), "US Global Sourcing: Patterns of Development", *International Journal of Operations & Production Management*, Vol.14, No.6, pp.40-51.*
- Hansen, G.S. and Wernerfelt, B., (1989), "Determinants of firm performance: The relative importance of economic and organizational factors", *Strategic Management Journal*, Vol.10, No.5, pp.399-411.
- Hohenstein, N.O., Feisel, E., Hartmann, E. and Giunipero, L., (2015), "Research on the phenomenon of supply chain resilience", *International Journal of Physical Distribution & Logistics Management*, Vol.45, No.1/2, pp.90-117.
- Holweg, M., Reichhart, A. and Hong, E., (2011), "On risk and cost in global sourcing", *International Journal of Production Economics*, Vol.131, No.1, pp.333-341.*
- Horn, P., Scheffler, P. and Schiele, H., (2014), "Internal integration as a pre-condition for external integration in global sourcing: A social capital perspective", *International Journal of Production Economics*, Vol.153, pp.54-65.*
- Horn, P., Schiele, H. and Werner, W., (2013), "The 'ugly twins': Failed low-wage-country sourcing projects and their expensive replacements", *Journal of Purchasing & Supply Management*, Vol.19, No.1, pp.27-38.*
- Hultman, J., Johnsen, T., Johnsen, R. and Hertz, S., (2012), "An interaction approach to global sourcing: A case study of IKEA", *Journal of Purchasing & Supply Management*, Vol.18, No.1, pp.9-21.*
- Jain, N., Girotra, K. and Netessine, S., (2014), "Managing Global Sourcing: Inventory Performance", *Management Science*, Vol.60, No.5, pp.1202-1222.*
- Jia, F., Lamming, R., Sartor, M., Orzes, G. and Nassimbeni, G., (2014), "International purchasing offices in China: A dynamic evolution model", *International Business Review*, Vol.23, No.3, pp.580-593.*
- Jia, F. and Zsidisin, G.A., (2014), "Supply Relational Risk: What Role Does Guanxi Play?", *Journal of Business Logistics*, Vol.35, No.3, pp.259-267.*
- Johnson, M.D., Sawaya, W.J. and Natarajaratnam, M., (2013), "A methodology for modelling comprehensive international procurement costs", *International Journal of Production Research*, Vol.51, No.18, pp.5549-5564.*
- Jüttner, U., Peck, H. and Christopher, M., (2003), "Supply chain risk management: outlining an agenda for future research", *International Journal of Logistics: Research & Applications*, Vol.6, No.4, pp.197-210.
- Kamann, D.J. and Van Nieulande, V., (2010), "A Four-filter Method for Outsourcing from Low-cost Countries", *Journal of Supply Chain Management*, Vol.46, No.2, pp.64-79.*
- Kaufmann, L. and Carter, C.R., (2006), "International supply relationships and non-financial performance—A comparison of U.S. and German practices", *Journal of Operations Management*, Vol.24, No.5, pp.653-675.*
- Kinkel, S., (2014), "Future and impact of backshoring—Some conclusions from 15 years of research on German practices", *Journal of Purchasing & Supply Management*, Vol.20, No.1, pp.63-65.*
- Kinkel, S. and Maloca, S., (2009), "Drivers and antecedents of manufacturing offshoring and backshoring—A German perspective", *Journal of Purchasing & Supply Management*, Vol.15, No.3, pp.154-165.
- Landis, R.J. and Koch, G.G., (1977), "The Measurement of Observer Agreement for Categorical Data", *Biometrics*, Vol.33, No.1., pp 159-174.
- Larsen, M.M., Manning, S. and Pedersen, T., (2013), "Uncovering the hidden costs of offshoring: The interplay of complexity, organizational design, and experience", *Strategic Management Journal*, Vol.34, No.5, pp.533-552.*
- Levy, D.L., (1995), "International Sourcing and Supply Chain Stability", *Journal of International Business Studies*, Vol.26, No.2, pp.343-360.*
- Liang, N. and Parkhe, A., (1997), "Importer Behavior: The Neglected Counterpart of International Exchange", *Journal of International Business Studies*, Vol.28, No.3, pp.495-530.*
- Light, R.J. and Pillemer, D.B. (1984), *Summing Up: The Science of Reviewing Research*, Harvard University Press, Cambridge, MA.
- Lorentz, H., Töyli, J., Solakivi, T. and Ojala, L., (2016), "The effect of a geographically dispersed supply base on downside risk: Developing and testing the N-shaped theory", *International Business Review*, Vol.25, No.4, pp.872–882.*

- Manuj, I. and Mentzer, J.T., (2008), "Global supply chain risk management strategies", *International Journal of Physical Distribution & Logistics Management*, Vol.38, No.3, pp.192-223.*
- Min, H., (1994), "International Supplier Selection", *International Journal of Physical Distribution & Logistics Management*, Vol.24, No.5, pp.24.*
- Mol, M.J., van Tulder, R.J.M. and Beije, P.R., (2005), "Antecedents and performance consequences of international outsourcing", *International Business Review*, Vol.14, No.5, pp.599-617.*
- Monczka, R.M. and Giunipero, L.C., (1984), "International Purchasing: Characteristics and Implementation", *Journal of Purchasing & Materials Management*, Vol.20, No.3, pp.2-9.*
- Monczka, R.M., Handfield, R.B., Giunipero, L.C. and Patterson, J.L. (2009), *Purchasing and Supply Chain Management*, South-Western Cengage Learning, New York.
- Moses, A. and Åhlström, P., (2008), "Problems in cross-functional sourcing decision processes", *Journal of Purchasing & Supply Management*, Vol.14, No.2, pp.87-99.*
- Najafi, N., Dubois, A. and Hulthén, K., (2013), "Opportunism or strategic opportunity seeking? Three approaches to emerging country sourcing", *Journal of Purchasing & Supply Management*, Vol.19, No.1, pp.49-57.*
- Nassimbeni, G., (2006), "International sourcing: Empirical evidence from a sample of Italian firms", *International Journal of Production Economics*, Vol.103, No.2, pp.694-706.*
- Nassimbeni, G. and Sartor, M., (2007), "Sourcing in China: a typology", *International Journal of Production Economics*, Vol.107, No.2, pp.333-349.*
- Pagano, A., (2009), "The role of relational capabilities in the organization of international sourcing activities: A literature review", *Industrial Marketing Management*, Vol.38, No.8, pp.903-913.
- Pawson, R. (2006), *Evidence-based policy: A Realist Perspective*, Sage, Thousand Oaks, CA.
- Petersen, K.J., Frayer, D.J. and Scannell, T.V., (2000), "An Empirical Investigation of Global Sourcing Strategy Effectiveness", *Journal of Supply Chain Management*, Vol.36, No.2, pp.29-38.*
- Platts, K.W. and Song, N., (2010), "Overseas sourcing decisions - the total cost of sourcing from China", *Supply Chain Management*, Vol.15, No.4, pp.320-331.*
- Quintens, L., Matthyssens, P. and Faes, W., (2005), "Purchasing internationalisation on both sides of the Atlantic", *Journal of Purchasing & Supply Management*, Vol.11, No.2/3, pp.57-71.*
- Quintens, L., Pauwels, P. and Matthyssens, P., (2006), "Global purchasing: State of the art and research directions", *Journal of Purchasing & Supply Management*, Vol.12, No.4, pp.170-181.
- Reuter, C., Foerstl, K., Hartmann, E. and Blome, C., (2010), "Sustainable Global Supplier Management: The Role of Dynamic Capabilities in Achieving Competitive Advantage", *Journal of Supply Chain Management*, Vol.46, No.2, pp.45-63.*
- Richard, P.J., Devinney, T.M., Yip, G.S. and Johnson, G., (2009), "Measuring organizational performance: Towards methodological best practice", *Journal of Management*, Vol.35, No.3, pp.718-804.*
- Rosič, H. and Jammerneegg, W., (2013), "The economic and environmental performance of dual sourcing: A newsvendor approach", *International Journal of Production Economics*, Vol.143, No.1, pp.109-119.*
- Rousseau, D.M., Manning, J. and Denyer, D., (2008), "Chapter 11: Evidence in Management and Organizational Science: Assembling the Field's Full Weight of Scientific Knowledge Through Syntheses", *Academy of Management Annals*, Vol.2, No.1, pp.475-515.
- Ruamsook, K., Russell, D. and Thomchick, E., (2007), "U.S. Sourcing from Low-Cost Countries: A Comparative Analysis of Supplier Performance", *Journal of Supply Chain Management*, Vol.43, No.4, pp.16-30.*
- Sandberg, B. and Aarikka-Stenroos, L., (2014), "What makes it so difficult? A systematic review on barriers to radical innovation", *Industrial Marketing Management*, Vol.43, No.8, pp.1293-1305.
- Sawhney, R. and Sumukadas, N., (2005), "Coping with customs clearance uncertainties in global sourcing", *International Journal of Physical Distribution & Logistics Management*, Vol.35, No.4, pp.278-295.*
- Schiele, H., Horn, P. and Vos, B., (2011), "Estimating cost-saving potential from international sourcing and other sourcing levers: Relative importance and trade-offs", *International Journal of Physical Distribution & Logistics Management*, Vol.41, No.3, pp.315-336.*
- Schneider, C.O., Bremen, P., Schönsleben, P. and Alard, R., (2013), "Transaction cost economics in global sourcing: Assessing regional differences and implications for performance", *International Journal of Production Economics*, Vol.141, No.1, pp.243-254.*
- Schoenherr, T., Rao Tummala, V.M. and Harrison, T.P., (2008), "Assessing supply chain risks with the analytic hierarchy process: Providing decision support for the offshoring decision by a US

- manufacturing company", *Journal of Purchasing & Supply Management*, Vol.14, No.2, pp.100-111.*
- Seuring, S. and Müller, M., (2008), "From a literature review to a conceptual framework for sustainable supply chain management", *Journal of Cleaner Production*, Vol.16, No.15, pp.1699-1710.
- Simon, H.A., (1955), "A Behavioral Model of Rational Choice ", *Quarterly Journal of Economics*, Vol.69, No.1, pp.99-118.
- Son, J.Y. and Orchard, R.K., (2013), "Effectiveness of policies for mitigating supply disruptions", *International Journal of Physical Distribution & Logistics Management*, Vol.43, No.8, pp.684-706.*
- Stanczyk, A., Foerstl, K., Busse, C. and Blome, C., (2015), "Global Sourcing Decision-Making Processes: Politics, Intuition, and Procedural Rationality", *Journal of Business Logistics*, Vol.36, No.2, pp.160-181.*
- Steinle, C. and Schiele, H., (2008), "Limits to global sourcing?: Strategic consequences of dependency on international suppliers: Cluster theory, resource-based view and case studies", *Journal of Purchasing & Supply Management*, Vol.14, No.1, pp.3-14.*
- Steven, A.B., Dong, Y. and Corsi, T., (2014), "Global sourcing and quality recalls: An empirical study of outsourcing-supplier concentration-product recalls linkages", *Journal of Operations Management*, Vol.32, No.5, pp.241-253.*
- Stratton, R. and Warburton, R.D.H., (2006), "Managing the trade-off implications of global supply", *International Journal of Production Economics*, Vol.103, No.2, pp.667-679.*
- Subramanian, N., Rahman, S. and Abdulrahman, M.D., (2015), "Sourcing complexity in the Chinese manufacturing sector: An assessment of intangible factors and contractual relationship strategies", *International Journal of Production Economics*, Vol.166, pp.269-284.*
- Sydow, J. and Frenkel, S.J., (2013), "Labor, Risk, and Uncertainty in Global Supply Networks-Exploratory Insights", *Journal of Business Logistics*, Vol.34, No.3, pp.236-247.*
- Tachizawa, E.M. and Gimenez, C., (2010), "Supply flexibility strategies in Spanish firms: Results from a survey", *International Journal of Production Economics*, Vol.124, No.1, pp.214-224.*
- Teng, S.G. and Jaramillo, H., (2005), "A model for evaluation and selection of suppliers in global textile and apparel supply chains", *International Journal of Physical Distribution & Logistics Management*, Vol.35, No.7, pp.503-523.*
- Thorelli, H.B. and Glowacka, A.E., (1995), "Willingness of American Industrial Buyers to Source Internationally", *Journal of Business Research*, Vol.32, No.1, pp.21-30.*
- Tranfield, D., Denyer, D. and Smart, P., (2003), "Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review", *British Journal of Management*, Vol.14, No.3, pp.207-222.
- Trautmann, G., Bals, L. and Hartmann, E., (2009), "Global sourcing in integrated network structures: The case of hybrid purchasing organizations", *Journal of International Management*, Vol.15, No.2, pp.194-208.*
- Trent, R.J. and Monczka, R.M., (1994), "Effective Cross-Functional Sourcing Teams: Critical Success Factors", *International Journal of Purchasing & Materials Management*, Vol.30, No.4, pp.3-11.
- Trent, R.J. and Monczka, R.M., (2003a), "International Purchasing and Global Sourcing - What Are the Differences?", *Journal of Supply Chain Management*, Vol.39, No.4, pp.26-37.*
- Trent, R.J. and Monczka, R.M., (2003b), "Understanding integrated global sourcing", *International Journal of Physical Distribution & Logistics Management*, Vol.33, No.7, pp.607-629.*
- Trevelen, M. and Sweikhart, S.B., (1988), "A risk/benefit analysis of sourcing strategies: single vs multiple sourcing", *Journal of Operations Management*, Vol.7, no. 4, 93-114.
- Tsai, M.-T., Huang, Y.-C., and Ma, R., (2009), "Antecedents and consequences of global responsiveness: An empirical examination of MNCs in the global sourcing context", *International Business Review*, Vol.18, No.6, pp.617-629.*
- Tse, Y.K. and Tan, K.H., (2012), "Managing product quality risk and visibility in multi-layer supply chain", *International Journal of Production Economics*, Vol.139, No.1, pp.49-57.*
- Vickery, S.K., Carter, J.R. and D'Itri, M.P., (1993), "An empirical analysis of foreign exchange management strategies in international sourcing", *International Journal of Physical Distribution and Logistics Management*, Vol.23, No.8, pp.38-45.*
- Voss, M.D., Closs, D.J., Calantone, R.J., Helferich, O.K. and Speier, C., (2009), "The role of security in the food supplier selection decision ", *Journal of Business Logistics*, Vol.30, No.1, pp.127-155.*

- Wagner, S.M. and Bode, C., (2006), "An empirical investigation into supply chain vulnerability", *Journal of Purchasing & Supply Management*, Vol.12, No.6, pp.301-312.*
- Weber, M., Hiete, M., Lauer, L. and Rentz, O., (2010), "Low cost country sourcing and its effects on the total cost of ownership structure for a medical devices manufacturer", *Journal of Purchasing & Supply Management*, Vol.16, No.1, pp.4-16.*
- Wilhelm, M., Blome, C., and Wieck, E. (2016). "Implementing Sustainability In Multi-Tier Supply Chains: Strategies and Contingencies In Managing Sub-Suppliers", *International Journal of Production Economics*, Vol.182, pp.196-212.
- Young, R.R., Swan, P.F., Thomchick, E.A. and Ruamsook, K., (2009), "Extending landed cost models to improve offshore sourcing decisions", *International Journal of Physical Distribution & Logistics Management*, Vol.39, No.4, pp.320-335.*
- Zeng, A.Z. and Rossetti, C., (2003), "Developing a framework for evaluating the logistics costs in global sourcing processes: An implementation and insights", *International Journal of Physical Distribution & Logistics Management*, Vol.33, No.9, pp.785-803.*
- Zhu, S.X., (2015), "Analysis of dual sourcing strategies under supply disruptions", *International Journal of Production Economics*, Vol.170, No. Part A, pp.191-203.*
- Zimmer, K., Fröhling, M. and Schultmann, F., (2016), "Sustainable supplier management – a review of models supporting sustainable supplier selection, monitoring and development", *International Journal of Production Research*, Vol. 54 No. 5, pp. 1412-1442.
- Zorzini, M., Stevenson, M. and Hendry, L.C., (2014), "Coordinating offshored operations in emerging economies: A contingency-based study", *International Journal of Production Economics*, Vol.153, pp.323-339.*

Note: References marked with an asterisk (*) are formally included in the review.

Figure 1. Article selection process

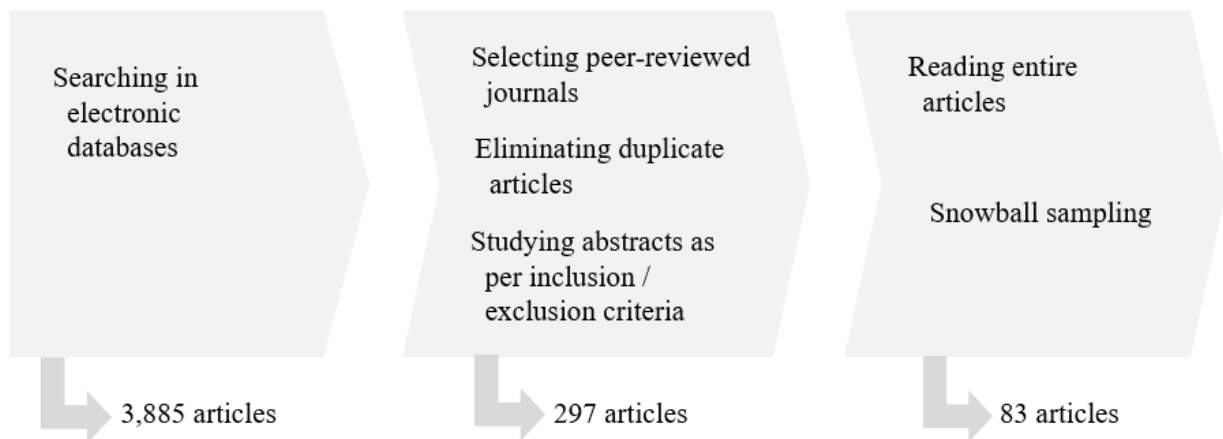


Figure 2. Publications per research method, 1984-2016

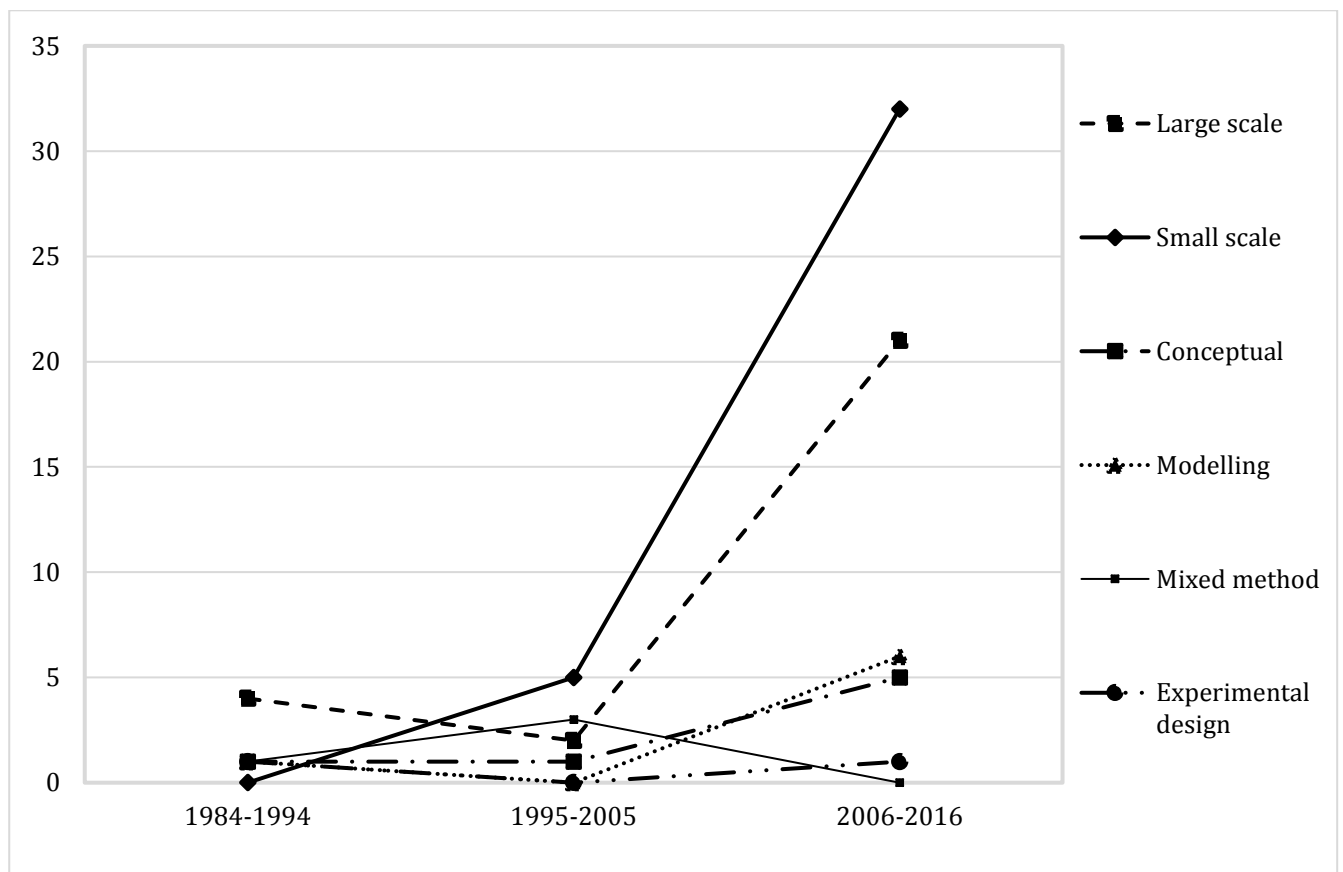


Figure 3. Global sourcing downsides framework

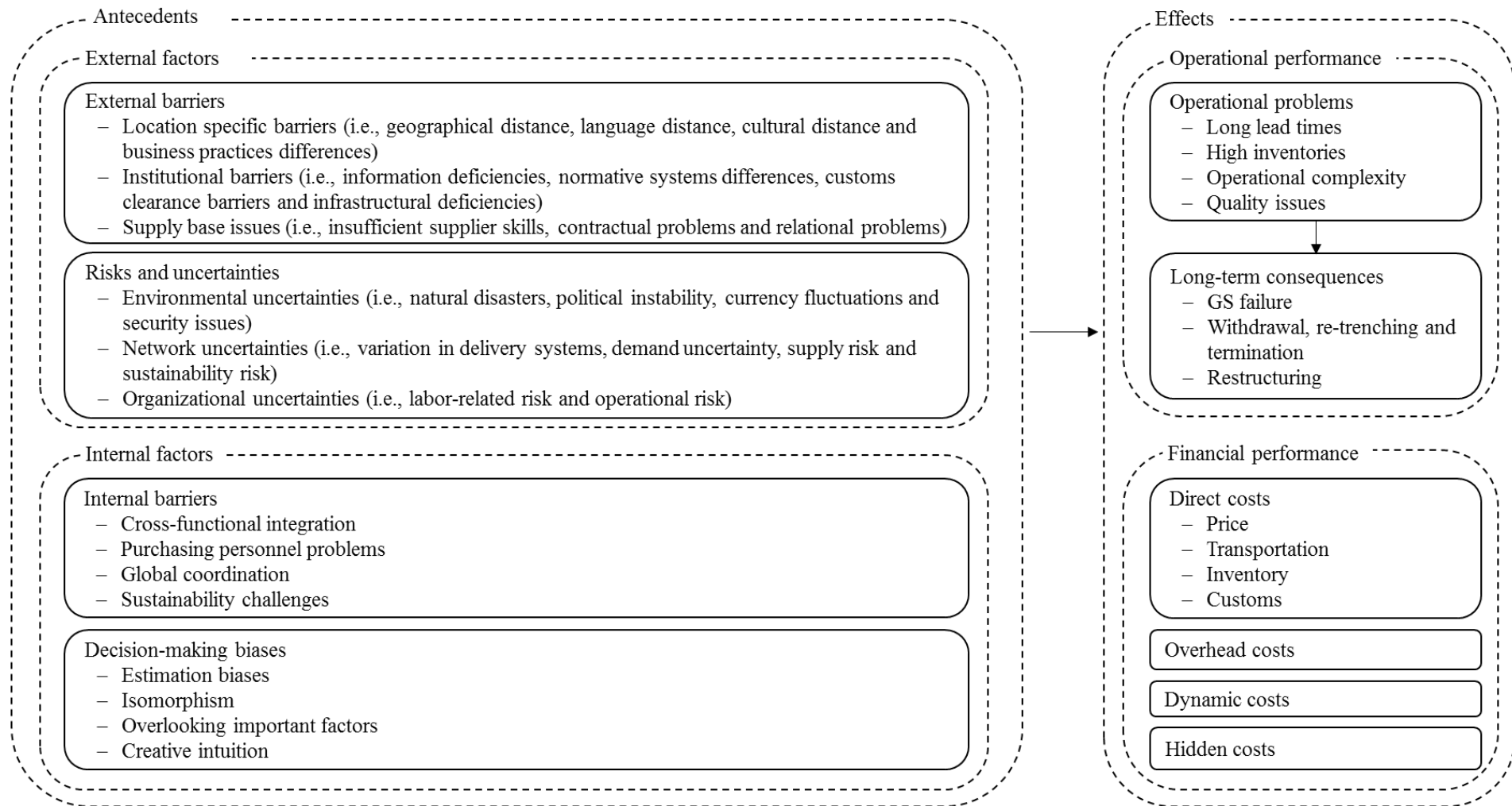


Figure 4. Total global sourcing cost

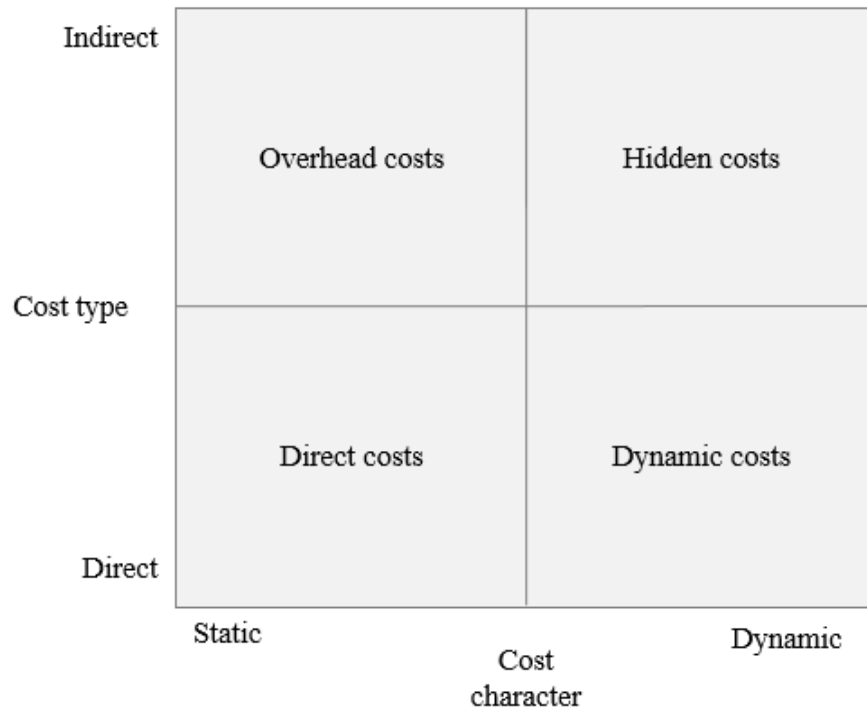


Table I. Key words used in the literature search

“Global”	and	“Sourcing”
local		purchasing
global		procurement
onshore		sourcing
offshore		supply management
foreign		supplier management
international		supplier selection
worldwide		
low cost country		
high cost country		

Table II. Inclusion and exclusion criteria

Inclusion criteria	Rationale
Article needs to focus on global sourcing	Selecting articles that concentrate on global sourcing as opposed to articles that only mention global sourcing
Focus on products/goods	Focus on goods only to ensure comparability of operational and financial performance effects
Any form of a downside is mentioned	The focus of this research is on the dark side of global sourcing
Article must be written in English	English is the main research language in the field of global sourcing
Article stems from internationally peer reviewed journal	Published peer-reviewed articles increase the quality of the manuscript (Denyer and Tranfield, 2009) and enhance the quality control (Light and Pillemar, 1984)
Exclusion criteria	Rationale
Articles with focus on services	It is uncertain whether developed model for goods in global sourcing context would also apply to services (Trevelen and Sweikhart, 1989; Durach <i>et al.</i> , 2015)
Articles with focus on production aspects such as in-house reshoring, reshoring for insourcing according to Gray <i>et al.</i> (2013)	Exploring only the buy aspect of global sourcing

Table III. External barriers

Articles	Location specific barriers			Institutional barriers			Supply base issues				
	Geographical distance	Language distance	Cultural distance	Business practices differences	Infrastructural deficiencies	Information deficiencies	Normative systems differences	Customs clearance barriers	Insufficient supplier skills	Contractual problems	Relational problems
Trent and Monczka (2003b)	x	x		x				x			
Zeng and Rossetti (2003)	x		x		x		x	x			
Sawhney and Sumukadas (2005)					x			x			
Nassimbeni (2006)	x	x		x		x	x	x		x	x
Nassimbeni and Sartor (2007)		x	x	x			x				
Ruamsook et al. (2007)				x			x				
Tsai <i>et al.</i> (2009)	x		x				x				
Fredriksson and Jonsson (2009)				x		x			x		x
Demeter (2014)		x	x					x		x	
Jia and Zsidisin (2014)							x				x
Steven <i>et al.</i> (2014)						x			x		x
No. of articles	29	17	15	10	6	10	10	14	4	4	12
% of all articles	35%	20%	18%	12%	7%	12%	12%	17%	5%	5%	14%

Table IV. Risks and uncertainties

Article	Environmental uncertainties				Network uncertainties				Organizational uncertainties	
	Natural disasters	Political instability	Currency fluctuations	Security issues	Variation in delivery systems	Demand uncertainty	Supply risk	Sustainability risk	Labor-related risk	Operational risk
Chung <i>et al.</i> (2004)		x				x				
Blackhurst <i>et al.</i> (2005)	x				x					
Sawhney and Sumukadas (2005)				x	x					
Nassimbeni (2006)		x	x		x		x			
Wagner and Bode (2006)	x					x	x			
Chaodong <i>et al.</i> (2008)	x						x		x	
Manuj and Mentzer (2008)		x		x	x	x	x			x
Schoenherr <i>et al.</i> (2008)	x	x			x		x		x	x
Platts and Song (2010)		x			x					
Golini and Kalchschmidt (2011)		x	x							
Christopher <i>et al.</i> (2011)						x	x	x		x
Rosič and Jammerneegg (2013)	x							x		
No. of articles	7	17	18	9	7	13	19	7	8	9
% of all articles	8%	20%	21%	11%	8%	15%	23%	8%	9%	11%

Table V. Internal barriers and decision-making biases

Article	Internal barriers			Sustainability challenges	Estimation biases	Decision-making biases		
	Cross-functional integration	Purchasing personnel problems	Global coordination			Isomorphism	Overlooking important factors	Creative intuition
Handfield (1994)		x				x		
Thorelli and Glowacka (1995)								x
Trent and Monczka (2003)	x	x			x			
Moses and Alhström (2008)	x						x	
Young <i>et al.</i> (2009)					x		x	
Trautmann <i>et al.</i> (2009)	x		x					
Rosič and Jammerneegg, (2013)				x				
Najafi <i>et al.</i> (2013)			x			x	x	
Gray <i>et al.</i> (2013)						x	x	
Horn <i>et al.</i> (2013)	x					x		
Gualandris <i>et al.</i> (2014)				x			x	x
Stanczyk <i>et al.</i> (2015)	x					x	x	x
No. of articles	9	6	7	6	8	6	14	6
% of all articles	11%	7%	8%	7%	9%	7%	17%	7%

Table VI. Operational performance effects

Article	Operational problems					Long-term consequences	
	Quality issues	Long lead times	Operational complexity	High inventories	GS failure	Withdrawal/ re-trenching/ termination	Restructuring
Fawcett and Birou (1992)	x	x					
Stratton and Warburton (2006)		x		x	x		
Ruamsook <i>et al.</i> (2007)	x	x					
Chaodong <i>et al.</i> (2008)		x		x			
Manuj and Mentzer (2008)			x			x	
Weber <i>et al.</i> (2010)	x						
Schiele <i>et al.</i> (2010)					x		
Hultmann <i>et al.</i> (2012)			x				x
Najafi <i>et al.</i> (2013)					x		x
Horn <i>et al.</i> (2013)			x		x	x	x
Demeter (2014)	x	x	x				
Jain <i>et al.</i> (2014)		x		x	x		
Jia <i>et al.</i> (2014)					x	x	
No. of articles	11	23	14	15	6	5	3
% of all articles	13%	28%	17%	18%	7%	6%	4%

Table VII. Overview on relevant costs in global sourcing

Article	Direct costs				Overhead costs	Dynamic costs	Hidden costs
	Price	Transportation	Inventory	Customs			
Zeng and Rossetti (2003)	Finished product price	Freight charge, consolidation, handling and packaging	Pipeline holding, safety stock	Customs clearance, brokerage fee, allocation fee	Order processing, communication		
Young <i>et al.</i> (2009)	Price including payment mechanism	Multiple carriers, handling and packaging, accessorial charges	Holding costs, goods in transit and safety stock	Harbor tax, merchandise processing fees	Sourcing and transactional activities costs	Increased cycle inventory and safety stock, obsolescence (→ inventory)	Currency and fuel adjustment (→ price, → transportation); threats to compliance and firm's reputation
Platts and Song (2010)	Price and payment terms	Multimodal cost, insurance	Third party warehouse, holding	Tax and import duties	Order processing, supplier management, set up costs	Expedited shipment, increased inventory and obsolescence (→ inventory)	Currency fluctuation (→ price)
Holweg <i>et al.</i> (2011)	Purchase price ex-factory	Transportation cost per unit (without unexpected delays), insurance	Inventory costs based on lead time	Customs and duties	Transaction costs, quality control and compliance (environmental and safety standards), managing supply base	Increased pipeline and safety stock, obsolescence, lost sales, expedited shipment	Labor cost inflation, loss of intellectual property, rise in transportation cost (due to higher oil prices); political and economic risk
Johnson <i>et al.</i> (2013)	Manufacturing cost (at external supplier)	Shipment costs; travel security costs	Safety stock and inventory carrying costs	Taxes and duties	Oversight and shipping costs	Expedited shipping (→ shipping), inventory costs (due to long lead times and demand variability; → inventory)	Currency risk
No. of articles		22			27	13	16
% of all articles		26%			32%	15%	19%